

Applicant: Axel ENDRISS
Docket No. R.305543
Preliminary Amdt.

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-7. (Canceled)

8. (New) A piezoelectric actuator, comprising

an actuator part including multilayer construction of piezoelectric layers perpendicular to the action direction, with inner electrodes which are located between the piezoelectric layers and which can be acted upon by an electrical actuator voltage for actuating the piezoelectric actuator part via outer electrodes, and

at least one sensor part including further piezoelectric layers with inner electrodes at which an electrical sensor signal proportional to the actuation of the piezoelectric actuator can be picked up via further outer electrodes,

the piezoelectric layers for the actuator part and the piezoelectric layers for the at least one sensor part being integrated in one component as a piezoelectric actuator in such a way that individual sensor piezoelectric layers are located at predeterminable spacings or locations between the piezoelectric layers for the actuator part.

9. **(New)** The piezoelectric actuator according to claim 8, wherein

when the cross section of the piezoelectric actuator is rectangular, electrically positive and negative outer electrodes of the actuator part, and electrically positive and negative outer electrodes of the sensor part are each mounted on diametrically opposite sides of the piezoelectric actuator.

10. **(New)** The piezoelectric actuator according to claim 9, wherein

in the case of a plurality of sensor parts each individually contacted by outer electrodes, the various sensor piezoelectric layers of the sensor parts are located side by side in a plane transverse to the action direction; and

in these sensor parts, the inner electrodes having the same polarity in the action direction of the piezoelectric actuator are contacted parallel to one another, on one side of the piezoelectric actuator, by outer electrodes.

11. **(New)** The piezoelectric actuator according to claim 9, wherein

both the outer electrodes of the actuator part and the outer electrodes of the at least one sensor part are located side by side on two diametrically opposite sides of the piezoelectric actuator.

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12. **(New)** The piezoelectric actuator according to claim 10, wherein

both the outer electrodes of the actuator part and the outer electrodes of the at least one sensor part are located side by side on two diametrically opposite sides of the piezoelectric actuator.

13. **(New)** The piezoelectric actuator according to claim 8, wherein

the inner electrodes of the at least one sensor part are located in the corner region and are each contacted there by outer electrodes.

14. **(New)** The piezoelectric actuator according to claim 9, wherein

the inner electrodes of the at least one sensor part are located in the corner region and are each contacted there by outer electrodes.

15. **(New)** The piezoelectric actuator according to claim 10, wherein

the inner electrodes of the at least one sensor part are located in the corner region and are each contacted there by outer electrodes.

16. **(New)** The piezoelectric actuator according to claim 11, wherein

the inner electrodes of the at least one sensor part are located in the corner region and are each contacted there by outer electrodes.

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17. **(New)** The piezoelectric actuator according to claim 12, wherein
the inner electrodes of the at least one sensor part are located in the corner region and
are each contacted there by outer electrodes.

18. **(New)** The piezoelectric actuator according to claim 13, wherein
in the case of a plurality of sensor parts, the various inner electrodes are contacted in
alternation by outer electrodes on different flanks of the corner region.

19. **(New)** The piezoelectric actuator according to claim 14, wherein
in the case of a plurality of sensor parts, the various inner electrodes are contacted in
alternation by outer electrodes on different flanks of the corner region.

20. **(New)** The piezoelectric actuator according to claim 15, wherein
in the case of a plurality of sensor parts, the various inner electrodes are contacted in
alternation by outer electrodes on different flanks of the corner region.

21. **(New)** The piezoelectric actuator according to claim 16, wherein
in the case of a plurality of sensor parts, the various inner electrodes are contacted in
alternation by outer electrodes on different flanks of the corner region.

22. **(New)** The piezoelectric actuator according to claim 17, wherein

in the case of a plurality of sensor parts, the various inner electrodes are contacted in alternation by outer electrodes on different flanks of the corner region.

23. **(New)** The piezoelectric actuator according to claim 8, wherein

a plurality of sensor elements connected in series are connected electrically parallel;

and/or

a plurality of actuator elements connected in series are connected electrically parallel.

24. **(New)** The piezoelectric actuator according to claim 10, wherein

a plurality of sensor elements connected in series are connected electrically parallel;
and/or

a plurality of actuator elements connected in series are connected electrically parallel.

25. **(New)** The piezoelectric actuator according to claim 11, wherein

a plurality of sensor elements connected in series are connected electrically parallel;
and/or

a plurality of actuator elements connected in series are connected electrically parallel.

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26. **(New)** The piezoelectric actuator according to claim 13, wherein

a plurality of sensor elements connected in series are connected electrically parallel;

and/or

a plurality of actuator elements connected in series are connected electrically parallel.

27. **(New)** The piezoelectric actuator according to claim 18, wherein

a plurality of sensor elements connected in series are connected electrically parallel;

and/or

a plurality of actuator elements connected in series are connected electrically parallel.